United States General Accounting Office

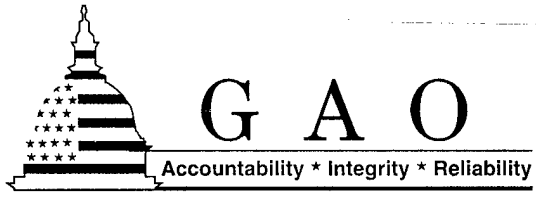
GAO

Report to Congressional Requesters

July 2000

HAZARDOUS MATERIALS TRAINING

DOT and Private Sector Initiatives Generally Complement Each Other



GAO/RCED-00-190

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Abbreviations

DOT	Department of Transportation
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GAO	General Accounting Office
HMEP	Hazardous Materials Emergency Preparedness
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
RSPA	Research and Special Programs Administration

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United States General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-284342

July 31, 2000

The Honorable Richard C. Shelby
Chairman
Subcommittee on Transportation
and Related Agencies
Committee on Appropriations
United States Senate

The Honorable Frank R. Wolf
Chairman
Subcommittee on Transportation
and Related Agencies
Committee on Appropriations
House of Representatives

Every day, trucks and trains transport over 770,000 shipments of hazardous materials across the United States. Accidents involving these materials—spills, fires, and explosions—cost the United States over $459 million annually and can have serious consequences for surrounding communities. For example, in 1996, in Weyauwega, Wisconsin, many rail cars derailed, triggering a fire of propane gas tank cars; the evacuation of over 3,100 people, many for up to 2 weeks; and property damages totaling about $20 million. Public sector emergency responders, such as fire fighters, police, and emergency medical technicians, are trained to respond appropriately to such accidents in order to protect themselves and affected communities.

Part of emergency responders' training is funded through federal grants administered by the Department of Transportation's (DOT) Research and Special Programs Administration (RSPA). These training grants, as well as planning grants to develop response plans for hazardous materials emergencies, were authorized by the Hazardous Materials Transportation Uniform Safety Act of 1990, which established the Hazardous Materials Emergency Preparedness (HMEP) grants program. HMEP training and planning grants go to states, territories, and Native American tribes. Each year, the training grants are used to help train over 120,000 of the nation's more than 2 million emergency responders. HMEP grants (called "planning grants") are also used for developing community plans to respond to emergencies involving hazardous materials.

Furthermore, the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and the National Fire Protection Association have established regulations and standards for training emergency responders in addressing hazardous materials emergencies. Pursuant to OSHA's and EPA's regulations, employers must train emergency responders according to each responder's duties—for example, as a fire fighter or as a member of a police department. In general, the National Fire Protection Association's training standards apply to different levels of training—ranging from basic to advanced—and to a variety of hazardous materials and situations—varying from mild to severe emergencies.

This year, RSPA significantly expanded the hazardous materials registration program to provide more funds for training and planning grants. Moreover, the private sector provides training assistance to the public sector's emergency responders in addressing hazardous materials situations. Because of this expansion of the registration program, you asked us to address concerns that HMEP-funded training could be duplicating the private sector's training assistance. As agreed with your offices, this report (1) describes the funding sources and expenditures for the HMEP program, (2) assesses whether the HMEP program and private sector efforts duplicate each other, and (3) provides information on whether the private sector's training initiatives meet federal training regulations and national training standards.

In examining any duplication between the HMEP-funded and the private sector-funded training activities, we discovered that there is no source of centralized data on public and private sector training activities. We addressed this constraint by reviewing HMEP-funded training for hazardous materials emergencies and private sector-funded initiatives in seven states—Alabama, California, Delaware, Illinois, Montana, New York, and Virginia. According to RSPA and industry officials, these states were reasonably representative of all states in terms of size, geographic dispersion, and the risks posed by the transportation of hazardous materials. In each state, we interviewed officials responsible for providing training in responding to hazardous materials emergencies and reviewed their training programs and budgets. To gain a nationwide perspective on potential duplication, we obtained the views of officials from national associations representing hazardous materials shippers and carriers and asked a consortium of 33 such associations to provide documentation on their training activities in the seven states we examined. We also interviewed officials and reviewed documents from EPA, the Federal

Emergency Management Agency (FEMA), the National Fire Protection Association, OSHA, and RSPA. A detailed description of our scope and methodology is contained in appendix I.

Results in Brief

The HMEP program has been funded, or self-financed, through registration fees paid by shippers and carriers of hazardous materials; however, the Congress, through DOT's appropriations statutes, limited the amount of program funds that could be spent. In February 2000, RSPA issued a final rule, effective May 1, 2000, that significantly expanded the program. The rule increased by two-thirds the number of shippers and carriers required to register and raised the fees. RSPA took this action to provide grants at the fully authorized level—$12.8 million annually. According to RSPA officials, they expanded the program to ensure that a larger segment of the hazardous materials response community will receive training at all levels. DOT's appropriations act for fiscal year 2000 did not limit, as it had done in fiscal year 1999, the amount of money that RSPA could spend on the HMEP program. Since 1992, when the program was first funded, through fiscal year 1999, RSPA has spent an annual average of about $8.1 million for the entire HMEP program. Over 80 percent of these funds were spent on training and planning grants, with the remaining funds spent on such grant-related activities as providing technical assistance to grantees for their emergency response planning and training.

In the seven states we contacted, HMEP-funded training to teach emergency responders about addressing hazardous materials emergencies and private sector training initiatives do not duplicate each other. Moreover, according to national representatives of major shippers and carriers of hazardous materials, such duplication does not occur nationwide. Rather, as part of a portfolio of training resources for the nation's emergency responders, these two types of training activities complement each other. The HMEP-funded training is classroom-based and broad in scope, addressing potential accidents involving a wide range of hazardous materials and containers. Much of this training teaches the emergency responders, who are likely to be the first ones to reach an accident scene, to recognize the nature and potential severity of a hazardous materials incident and the appropriate actions to take. In contrast, the initiatives funded by the private sector focus primarily on how emergency responders should react to incidents involving specific hazardous materials, such as propane, or specific containers, such as railroad tank cars. Generally, these private initiatives provide information

and training materials, such as videos or books, rather than classroom training.

According to representatives of national associations of hazardous materials shippers and carriers, the private sector's training initiatives on responding to hazardous materials emergencies are not designed or intended to comply with federal regulations and national training standards on emergency response training for public sector employees. These regulations and standards include the OSHA and EPA regulations for responding to hazardous materials emergencies and the National Fire Protection Association's training standards, which apply to different levels of training that range from basic to advanced.

We provided a draft of this report to DOT for its review and comment. In responding for the Department, RSPA officials generally agreed with the facts presented and provided technical clarifications, which we incorporated as appropriate.

Background

Under the 1975 Hazardous Materials Transportation Act, RSPA has the authority to regulate the transportation of hazardous materials, including their packaging and labeling, as well as the identification that vehicles must have in transporting these materials.[1] In 1990, the Hazardous Materials Transportation Uniform Safety Act, which amended the 1975 act, required certain hazardous materials shippers and carriers to register with RSPA and pay an annual registration fee. RSPA can set the registration fee at a minimum of $250 but not more than $5,000.

The HMEP program is funded from fees that RSPA sets and collects from certain hazardous materials shippers and carriers. The proceeds from these fees are allocated for planning and training grants to states, territories, and Native American tribes for responding to emergencies involving hazardous materials. RSPA awards the training grants on the basis of a formula that

[1] As part of this responsibility, RSPA defines materials as being hazardous for transportation purposes and requires that the containers have labels, placards, or markings identifying the materials being shipped. RSPA places these materials into various categories, such as explosives; flammable, poisonous, or corrosive gases; flammable liquids; and flammable or spontaneously combustible solids; or solids that are dangerous when wet. Other categories of hazardous materials include oxidizers and organic peroxides; poisonous and infectious materials; radioactive materials; corrosive material; and other materials that are hazardous but present a limited hazard while being transported.

uses such factors as population, the number of highway miles, and the number of chemical facilities in each state. Grant recipients must provide 20 percent of the total cost of their HMEP-funded training and planning activities.

The HMEP program has a number of other grant-related activities that are also funded from the registration fees paid by the shippers and carriers of hazardous materials. Specifically, in coordination with FEMA's Emergency Management Institute, the program funds the development and the periodic updating of the national curriculum for hazardous materials emergency response training, including the list of "Assessed Hazardous Materials Response Courses." The states receiving HMEP grants assess the courses that they sponsor to certify that the courses are consistent with applicable OSHA and EPA training regulations and the National Fire Protection Association's training standards. The HMEP program also provides technical assistance to grantees to implement emergency response training and planning for hazardous materials incidents. Finally, the program funds the publication and distribution, every 3 years, of the Emergency Response Guidebook[2] and supports the hazardous materials training program of the International Association of Fire Fighters.

Other federal, state, and local government programs also provide funding and training for emergency responders who may face hazardous materials incidents. At the federal level, under the Emergency Planning and Community Right-to-Know Act of 1986, FEMA awards grants and provides technical support to the states and local governments for training in hazard mitigation. EPA also provides funding for similar training. Moreover, the departments of Energy and Justice have grant programs for training in other types of emergencies, such as those involving radioactive materials or terrorist chemical attacks. In addition, state and local governments provide training in responding to hazardous materials emergencies, often through their fire academies.

Effective in 1990, OSHA's training regulations—Hazardous Waste Operations and Emergency Response regulations (29 C.F.R. 1910.120(q))—and EPA's regulation (40 C.F.R. 311) established emergency response

[2] Developed jointly by DOT, Transport Canada, and Mexico's Secretariat of Transport and Communications, the guidebook is an aid to fire fighters, police, and other first responders to a hazardous materials accident scene for (1) quickly identifying the specific or generic classification of the material(s) involved in the incident and (2) protecting themselves and the public during the initial response to the incident.

training requirements for employers in the private and public sectors. [3] These regulations require these employers to train emergency responders according to the duties each responder performs as a member of an emergency response organization, such as a local fire or police department. These employers must also ensure that trainers satisfy standards, and they must provide refresher training for emergency response employees each year.

Pursuant to the Occupational Safety and Health Act of 1970, OSHA and EPA training regulations must be based on the training standards set by a recognized, standard-setting organization—in this case, the National Fire Protection Association. In general, the National Fire Protection Association's training standards apply to different levels of training—ranging from basic to advanced—and to a variety of hazardous materials and situations—varying from mild to severe emergencies. The Association's standards require public sector emergency responders to receive training that covers the range of hazardous materials they may encounter. More specifically, the Association's training standards include professional "competencies" (or levels of expertise) for emergency personnel who respond to hazardous materials incidents.[4] According to these standards, at the basic training level, emergency responders are to be trained to demonstrate numerous competencies. For example, responders are expected to be able to identify (1) examples of each of the hazardous materials classified by RSPA and (2) the primary hazards associated with each of these hazardous materials. Other, more advanced, levels of training have far more detailed expectations about proactive steps that emergency responders can take to stop a spill or leak of a specific hazardous material—for example, petroleum—from a specific container, such as a tanker truck. (See app. II for a discussion of national training regulations and standards for emergency response training.)

[3] The Secretary of Labor (through OSHA) and EPA established training requirements for employees who are engaged in hazardous waste operations. OSHA's training regulations are applicable to private sector employees and to federal employees through Executive Order No. 12196. Generally, OSHA's regulations do not extend to employees of state and local governments—such as fire fighters or police—unless states have adopted OSHA-approved worker health and safety plans that include OSHA's training requirements. Other state and local employees are covered by the EPA regulation, which incorporates the OSHA regulations.

[4] NFPA 472, Standard on Professional Competence of Responders to Hazardous Materials Incidents, 1997 Edition (National Fire Protection Association).

Funding for the HMEP Program Was Recently Increased by Requiring More Carriers and Shippers to Register

The HMEP program has been funded through registration fees paid by certain shippers and carriers of hazardous materials. In fiscal year 2000, RSPA expanded the hazardous materials registration program significantly by increasing the number of shippers and carriers required to register and pay the fees and by increasing the fees. Such actions would enable RSPA to collect sufficient funds to provide grants at the program's maximum authorized level—$12.8 million annually. If RSPA provides grants at the $12.8 million level, it will have nearly doubled the annual average spent on planning and training grants. Since 1992, when the program was first funded, through fiscal year 1999, RSPA has spent an annual average of about $8.1 million for the HMEP program. Most of these funds—over 80 percent—were spent on planning and training grants.

RSPA's New Rule Increased Registration Base and Fees to Fully Fund the HMEP Program

According to agency officials, RSPA decided to expand the hazardous materials program's registration base to collect more funds. They explained that such an action would ensure that a larger segment of the emergency response community would receive hazardous materials response training at all levels. The legislation that created the HMEP program authorized up to $12.8 million per year for planning and training grants. However, each year from fiscal year 1992 through fiscal year 1996, and again in fiscal year 1999, language in the provisions of DOT's appropriations legislation limited the amount of money that RSPA is allowed to spend for HMEP's planning and training grants. The Department's appropriations act for fiscal year 2000 did not limit obligations for the HMEP program.

In a February 2000 rule, RSPA expanded the number of firms that must register by including all shippers and carriers required by the Hazardous Materials Regulations to identify their loads with hazardous materials placards. RSPA's rule became effective on May 1, 2000. Prior to this rulemaking, the registration and fees were applied to any shipper or carrier that transported (1) any hazardous material in a bulk container with a capacity greater than 3,500 gallons for liquid or 468 cubic feet for solids or (2) a shipment other than in a bulk container that weighs more than 5,000 pounds of a hazardous material requiring placarding.[5] Under the new rule, most farmers would not have to register and pay fees.[6] According to RSPA officials, the new rule will expand by two-thirds the number of firms required to register, from about 27,000 to over 45,000. RSPA also established a two-tiered fee structure, with small businesses paying $275 (up from $250) and about 1,500 other[7] firms paying $1,975 (also up from $250).[8]

Opponents of the new rule questioned the equity of requiring very large companies to pay only $1,975 while very small companies must pay $275. Some firms and industry associations argued that very large companies ship greater quantities of hazardous materials than many smaller entities combined, such as propane gas distributors. Representatives of the National Propane Gas Association—which has many member firms that will now be required to register and pay fees for the first time—questioned RSPA's decision to expand the program. These representatives asked whether RSPA had adequately determined how grantees use their HMEP grants. They cited their industry's efforts to improve emergency response capabilities for propane incidents and questioned the need for their members to provide additional funds for training efforts.

[5] Prior to RSPA's February 2000 rule, registration fees were also paid by all carriers and shippers of (1) highway route-controlled quantities of certain radioactive materials, (2) more than 55 pounds of certain types of explosive materials, and (3) more than a liter per package of material that is extremely toxic by inhalation.

[6] According to RSPA, an exception was made for farmers offering or transporting hazardous materials, such as fertilizer and pesticides, in direct support of their farming activities.

[7] Firms not classified as "small businesses" under Small Business Administration guidelines.

[8] Prior to the February 2000 rule, transporters and shippers paid a $250 registration fee plus a $50 administrative service charge. The new rule increases the registration fee to $275 for small firms and to $1,975 for other firms but lowers the service charge to $25. According to RSPA officials, the processing fee was reduced because receipts substantially exceeded costs.

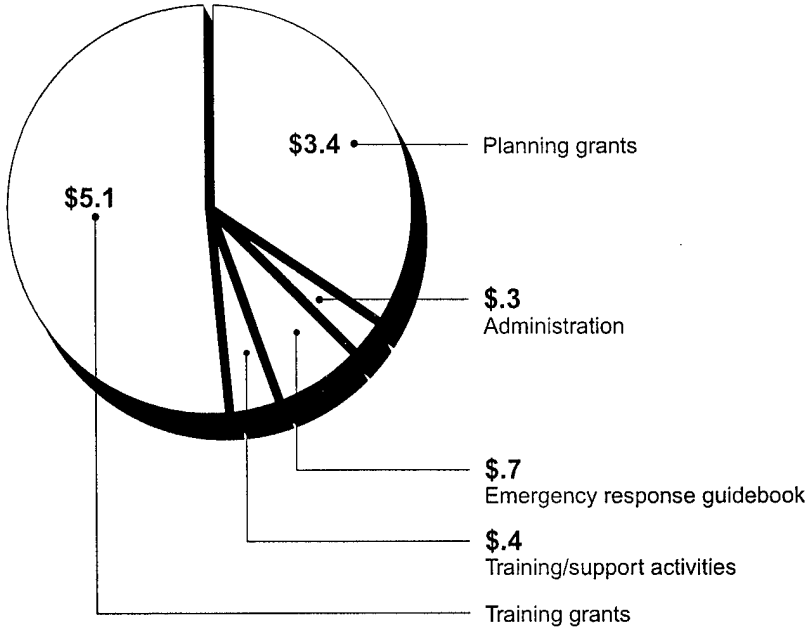
According to RSPA officials, RSPA spent considerable effort evaluating several different methods of apportioning the new fees among registrants, based on such factors as the type of material, type or size of container, and the number of shipments offered and transported. According to agency officials, RSPA's objectives were to establish a fee system that would better meet the needs of the emergency response community, match the registration fee to risks, and strike a balance between simplicity and fairness. These officials explained that the changes would provide the level of revenue needed to fund the HMEP program at the fully authorized level. They estimated that the fees generated by the new rule will provide $14.3 million to be collected in fiscal year 2000, enabling RSPA to award $12.8 million in planning and training grants in fiscal year 2000.[9] The remaining $1.5 million in fees would be used to fund the emergency response guidebook, the development of a national curriculum of training courses on responding to hazardous materials emergencies, the International Association of Fire Fighters' training, technical assistance to grantees, and administrative costs.

Proceeds From Hazardous Materials Registration Fees Pay for Planning and Training Grants

For fiscal years 1992 through 1999, the registration fees that RPSA collected from hazardous materials shippers and carriers ranged from $6.8 million to $9.4 million annually. During this time, most of these proceeds—an average of about $6.7 million per year—were used to pay for planning and training grants. (See apps. III and IV.) Figure 1 shows the distribution of funds in fiscal year 1999.

[9] According to RSPA officials, RSPA awards grants in the same fiscal year as it collects the fees. However, because the award takes place late in the fiscal year, the grantees spend the funds in the next fiscal year. For example, in fiscal year 2001, the grantees will spend the $12.8 million that RSPA awarded in fiscal year 2000.

Figure 1: HMEP Program Fund Allocations, Fiscal Year 1999



Dollars in millions

Note: The HMEP program's training and/or training support activities included appropriations of $200,000 for curriculum development and $250,000 to support the training programs of the International Association of Fire Fighters. Fig. 1 excludes $1.6 million in registration fees—of which $721,000 was the cost of collecting fees as well as of registering carriers and shippers of hazardous materials. The remainder of the $1.6 million was retained in the Treasury's general fund.

In fiscal year 1999, out of total HMEP program expenditures of $9.9 million, the program spent about $8.5 million on grants—$5.1 million on training grants and $3.4 million on planning grants. The individual training grants to states ranged from about $28,000 to $390,000. The HMEP program also spent about $1.4 million on other grant-related activities. To promote compliance with federal regulations and national standards for emergency response training, the program funded the development and periodic updating of the national curriculum on training for responding to hazardous materials emergencies. Specifically, under a cooperative agreement with DOT, FEMA's Emergency Management Institute provides ongoing technical assistance for curriculum development. This included the preparation, publication, and distribution of the March 1998 "Guidelines for Public Sector Hazardous Materials Training." When they follow these guidelines, grantees independently assess whether their

training courses comply with federal regulations and national standards. The Institute reviews the grantees' assessments and adds to a course catalogue the courses that satisfy the guidelines. According to an Emergency Management Institute official, all courses funded by HMEP training grants have been assessed as being consistent with OSHA's and EPA's regulations and the National Fire Protection Association's standards.

HMEP and Private Sector Training Initiatives Generally Are Not Duplicative

In the seven states we reviewed, HMEP-funded training for responding to hazardous materials emergencies and private sector-funded training initiatives do not duplicate each other. Furthermore, duplication does not generally occur nationwide, according to national representatives of major shippers and carriers of hazardous materials. HMEP training grants generally support training that covers the full range of hazardous materials and shipping containers and typically fund classroom-based training. In contrast, private sector-funded initiatives focus on responding to emergencies involving specific hazardous materials and the containers used to transport them. Also, these training initiatives typically are not classroom-based but are provided through other means, such as texts and videos, or feature company personnel who participate in emergency response exercises with local agencies, such as fire and police departments.

HMEP Grant Program Supports Broad Classroom-Based Training for Emergency Personnel

HMEP grants generally pay for classroom-based response training that teaches public sector emergency responders to respond to a variety of hazardous materials emergencies. Differing levels of training address the appropriate defensive or proactive actions required. For defensive purposes, HMEP-funded basic training teaches emergency responders who are likely to be the first to reach an accident scene to recognize the nature and potential severity of a hazardous materials incident and the appropriate steps to take. For example, in an accident involving a derailed tank car, the emergency responders who are the first on the scene are taught to recognize the presence of hazardous materials and the appropriate defensive measures to take. These measures include securing the area, containing the spill, and, if necessary, evacuating nearby residents until advanced teams arrive.

The HMEP-sponsored training also teaches more proactive or advanced responses that go beyond recognizing or containing an accident but which are designed to halt the spill or release of hazardous materials. This more proactive training sometimes includes the use of specialized protective

clothing and control equipment. It enables emergency responders to safely approach an accident scene to plug, patch, or otherwise stop a release of hazardous materials into the environment. For example, the Commonwealth of Virginia uses its HMEP grants to provide advanced training to 13 specialized teams that respond to hazardous materials emergencies throughout the state. The teams receive this training at a facility that has the specialized containers (for example, tankers and rail cars) that may be involved in hazardous materials emergencies.

In fiscal year 1999, the states we examined provided both basic defensive, as well as more proactive, or advanced, training. For instance, Alabama's fire college conducted 14 basic to advanced classes for 396 emergency responders, including fire fighters, police, and emergency medical technicians. However, most of these states emphasized basic defensive training. For example, Illinois provided basic training classes for almost 8,000 emergency responders. Montana's Fire Services Training School conducted 37 classes, often in remote locations, primarily in basic training for 619 personnel. The two largest states that we examined—California and New York—trained thousands of emergency responders in both basic and advanced responses. California trained over 20,000 personnel in 1,183 classes, ranging from basic and refresher courses to advanced training on managing a hazardous materials emergency scene. Many of the California courses required 40 hours to complete. New York State provided basic and advanced classroom training to over 7,000 emergency responders.

The Private Sector's Training Initiatives Primarily Address Material-Specific and Container-Specific Emergencies

Private sector training initiatives differ from the HMEP-funded training by focusing on specific materials and containers. According to officials of some national associations of shippers and carriers of hazardous materials, providing training for their specific materials or containers is the norm for their industries.

For example, the National Propane Gas Association, through the Propane Education and Research Council, has been proactive in educating fire fighters on propane-specific emergencies. Toward this end, the Council developed and distributed a 219-page book—*Propane Emergencies*—to fire departments, fire academies, and propane marketers nationwide. The book discusses the physical properties of propane, the design and construction of propane containers, typical emergency scenarios, and tactical guidelines for addressing propane emergencies. The Council also developed a propane-specific training video, published emergency response case

studies, and established an Internet website to support its educational efforts.

Industry experts also participate in local emergency response training exercises. For instance, according to Alabama state officials, private companies, such as AMOCO and CSX, occasionally bring rail cars into local communities and participate in emergency incident training exercises to demonstrate how their equipment (such as valves on tank cars) operates and how to respond to spills of hazardous materials. In addition, according to industry representatives, the Chemical Manufacturers Association, the Association of American Railroads, and the American Trucking Associations together provide training on responding to spills of hazardous materials along routes frequently used by hazardous materials carriers.

As these examples also suggest, the private sector generally provides its training in ways that differ from the classroom-based HMEP-funded training. Industry initiatives include written material and videotapes covering specific hazardous materials. Additionally, at no charge, private sector experts sometimes teach parts of training classes conducted at state fire academies, and company personnel sometimes participate in emergency response training exercises held by the public sector at the local level. A Chemical Manufacturers Association official told us that member companies often conduct drills and sponsor training programs involving local emergency personnel and other groups in the communities in which their plants are located.

State officials we contacted emphasized that the scope of industry's efforts was limited, usually to specific materials or containers. For instance, the chief of New York State's Hazardous Materials Bureau told us that a representative of the state propane association teaches the propane section—approximately one-quarter of the state's 2-day "Flammable Gas Emergency Response Workshop." While praising industry efforts, the New York official said the state would welcome additional assistance from industry representatives. Furthermore, officials in six of the seven states told us that industry-funded training initiatives were generally valuable. All seven states, however, said that this training was provided infrequently. For example, Montana state officials said that there has been no private sector training since the mid-1990s, when a railroad company conducted a seminar, but this seminar was held only in eastern Montana.

Privately Funded Training Is Not Intended to Comply With Federal Training Regulations and National Training Standards

The private sector's training initiatives are not designed to comply with federal training regulations and national training standards, according to representatives from the Petroleum Marketers Association of America, the American Trucking Associations, the Institute of Makers of Explosives, and the Chemical Manufacturers Association, as well as other members of a consortium of 33 associations of hazardous materials shippers and carriers. These regulations and standards include OSHA and EPA regulations for responding to hazardous materials emergencies and the National Fire Protection Association's training standards, which apply to different levels of training, ranging from basic to advanced.

According to industry representatives we contacted, no requirement exists for industry's training efforts to comply with federal regulations for public sector training. Typically, industry, voluntarily and at no charge, provides training assistance to the public sector's emergency responders. For example, according to representatives of the National Propane Gas Association, the propane industry provides training assistance to public sector responders on a voluntary basis to be a "good corporate citizen." Officials in six of the seven states we contacted stated that the industry-funded training initiatives do not fulfill the requirements established by OSHA and EPA and detailed in the National Fire Protection Association's standards. In the remaining state, the manager of the state training programs told us that it is up to the local jurisdiction to determine whether the private sector-provided training assistance meets federal training regulations and national training standards.

Agency Comments

We provided DOT with a draft of this report for review and comment. RSPA's Director, Office of Hazardous Materials Planning and Analysis, and RSPA's Manager, HMEP Grants, among others, responded for DOT. The officials generally agreed with the facts presented in our report but wanted to emphasize a few points. For example, the officials stated that they elected to expand the size of hazardous materials registration program because of the estimated 2 million emergency responders who require initial and recurring training. We modified the report to incorporate this information. RSPA officials also provided other technical clarifications, which we incorporated as appropriate. OSHA officials also provided technical clarifications, which we incorporated as appropriate.

We performed our review from December 1999 through June 2000 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the cognizant congressional committees; the Honorable Rodney E. Slater, Secretary of Transportation; Kelley S. Coyner, Administrator, Research and Special Programs Administration; and other interested parties. We will also make copies available to others upon request.

If you have any questions about this report, please call me at (202) 512-2834. Key contributors to this report were Ernie Hazera, Alexander Lawrence, William Sparling, and Frank Taliaferro.

Phyllis F. Scheinberg
Associate Director,
Transportation Issues

Appendix I

Objectives, Scope and Methodology

This report (1) describes the funding sources and expenditures for the Hazardous Materials Emergency Preparedness (HMEP) program, (2) assesses whether the HMEP program and private sector efforts duplicate each other, and (3) provides information on whether the private sector's training initiatives meet federal training regulations and national training standards.

To describe the funding sources and expenditures for the HMEP program, we interviewed Research and Special Program Administration (RSPA) officials. During our meetings, we discussed such topics as the legislative authority for the program, the program's expansion, and RSPA's administration of the program. We also reviewed available supporting documentation, including (1) RSPA's proposed and final regulations, which expanded the registration requirements and increased the fees, and (2) the Department of Transportation's (DOT) 1998 report to the Congress addressing RSPA's administration of the training grants program. To gain the perspective of the private sector, we discussed the expansion of the HMEP program with representatives of such organizations as the National Propane Gas Association, the Petroleum Marketers Association of America, the American Trucking Associations, a 33-member consortium of hazardous material shippers and carriers, and others.

To assess whether the HMEP program and private sector efforts duplicate each other, we sought nationwide data on the sources of training provided to emergency response personnel in the public sector in federal fiscal year 1998.[1] Because no comparable centralized national data exist on either HMEP-funded training or on training initiatives funded by the hazardous materials industry, we considered conducting a survey of states and of hazardous materials shippers and carriers to gather nationally representative data. This approach was not feasible because no comprehensive list of shippers and carriers of hazardous materials exists from which to select a sample. Because of these constraints, we decided to limit our review of HMEP-funded and private sector-funded training to seven states: Alabama, California, Delaware, Illinois, Montana New York, and Virginia. As a result, our findings are generally limited to the seven selected states. To address the limitation, we asked representatives of national associations of major shippers and carriers of hazardous materials

[1] At the time we conducted our study, fiscal year 1999 was the most recent year for which RSPA had all state HMEP program annual reports.

about the training initiatives they and their members provide in these seven states as well as nationwide.

In each of the states, we contacted and interviewed officials of the state emergency response commission—the agency responsible for administering training programs in responding to hazardous materials emergencies. In this effort, we obtained and analyzed information on the (1) number of emergency response personnel (professional and volunteer) in the state who received hazardous materials response training in fiscal year 1999 and (2) the number and type of training courses in hazardous materials emergency response provided in that year. In addition, we asked the state officials to provide (1) a list of training courses funded with HMEP training grant funds and (2) additional information, including the name and location of each course, the number of attendees, and whether course content was consistent with federal training regulations and national training standards. The responses we received from each state listed the classroom-based training supported with HMEP funds and the additional information requested. We also interviewed officials from state and local fire academies and local emergency response committees.

Similarly, to gather data on private sector-funded training initiatives in the selected states, we asked associations representing major national shippers and carriers of hazardous materials to provide (1) a list of training courses they or their member firms funded and (2) additional information, including the number of courses funded, the name and location of each course, the number of attendees, and whether the course content was consistent with federal training regulations and national training standards. We made this request through a consortium of 33 national shippers and carriers of hazardous materials. Because our initial work provided no evidence of classroom-based training assistance on the part of the private sector, we also asked about alternative forms of training assistance, such as emergency response video tapes, textbooks, training equipment donated for training exercises, and any other forms of industry-provided training assistance for public sector emergency response personnel. Because we received no direct responses from this approach, we also spoke with individual members of the consortium, attended a meeting of the consortium, and repeated our requests for the above information. The information we report on private sector training initiatives was provided to us during those interviews. Some associations also provided us with copies of the training assistance, such as videos and printed materials, which we reviewed.

The decision on which states to include in our study reflected the level of HMEP grant funding that each state received in fiscal year 1998. The HMEP funding level was based primarily on risk factors DOT uses to indicate the level of risk of the occurrence of hazardous materials-related incidents. These risk factors include each state's (1) population as a proportion of the national population, (2) highway miles and miles that trucks carry hazardous materials, and (3) number of fixed-site hazardous materials facilities. In aggregate, the states we selected represented between 20 and 25 percent of the nation for these risk factors. Moreover, in our selection of states to include in our study, we chose states that were small, medium, and large in population and were geographically dispersed. Moreover, these states reflected the different hazardous materials response-training needs of states with large cities, states with mostly medium-sized or smaller cities, and states with predominantly rural character. Specifically, states with large cities have professional fire departments and often have their own fire academies, while states with medium-sized and smaller cities and states that are primarily rural have mostly volunteer fire departments. We contacted California, Illinois, and New York because they have large metropolitan areas; we contacted Alabama and Virginia because they have medium-sized cities and rural areas; and we contacted Montana, because it is predominantly rural. We also added Delaware, which has numerous chemical facilities, at the request of the spokesperson for the consortium of 33 hazardous material associations. These seven states accounted for over 24 percent of all transportation-related hazardous materials incidents in 1998, about 22 percent of HMEP's total training grant funds, and about 28 percent of the nation's population.

While the data collected from the seven states did not provide statistically projectable results, officials we contacted indicated that the selected states were generally representative of the nation as a whole. Specifically, officials from the HMEP grant program, from the Federal Emergency Management Agency's (FEMA) Emergency Management Institute, and the consortium of 33 hazardous material associations, supported our selection of states. They told us that the states covered in our review provide a reasonable representation of the nation with regard to hazardous material transportation issues, including training public sector emergency responders. The consortium spokesperson suggested that we add Delaware and West Virginia to our original list of six states because both states have numerous chemical facilities and industry training programs. We generally agreed, but because of time limitations added only one state, Delaware.

To provide information on whether the private sector's training initiatives meet federal training regulations and national training standards, including those of the Department of Labor's Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and the National Fire Protection Association, and to obtain an understanding of the applicable goals, standards, and regulations that apply to hazardous materials emergency response training, we reviewed program documents, OSHA and EPA regulations, and standards established by the National Fire Protection Association. Specifically, we reviewed and analyzed RSPA's training curriculum, RSPA's course assessment guidance, and federal regulations for training the public sector's emergency responders in addressing hazardous materials emergencies. These regulations include OSHA's 29 C.F.R. 1910.120(q) and EPA's 49 C.F.R. 311. We also reviewed and analyzed the National Fire Protection Association's guidelines for hazardous materials emergency response training—specifically, NFPA 472, *Standard for Professional Competence of Responders to Hazardous Materials Incidents*. We discussed these regulations and standards with RSPA, OSHA, EPA, and National Fire Protection Association officials.

We also asked national industry association representatives, including members of the consortium of 33 associations, whether the hazardous materials response training they funded for public sector emergency personnel was consistent with the goals of the HMEP program, OSHA's and EPA's regulations, and the National Fire Protection Association's standards. We also queried state officials about whether any privately funded hazardous materials emergency response training delivered in their states complied with these regulations and standards, as well as any separate state requirements.

We performed our review from December 1999 through June 2000 in accordance with generally accepted government auditing standards.

Federal Regulations and National Standards for Hazardous Materials Emergency Response Training

To comply with federal regulations, hazardous materials emergency response training must adhere to OSHA or EPA requirements. The applicability of the OSHA or EPA regulations depends on individual states' decisions on whether to comply with federal health and safety law or to establish independent health and safety standards that meet or exceed federal OSHA standards. While OSHA and EPA regulations provide standards that must be met, the National Fire Protection Association standards detail the specific knowledge that trainees must have to be considered competent to provide varying levels of response to a hazardous materials incident.

Specific Training Requirements Set Out for First Responders

The federal OSHA program was established pursuant to the Occupational Safety and Health Act of 1970 (P.L. 91-596). According to OSHA, under section 18 of the act, states could assume responsibility for occupational safety and health enforcement through OSHA-approved state plans. These plans, operating under the authority of state law, must adopt standards that are identical to, or at least as effective as OSHA standards. Also, these plans must cover state and local government workers, who are not covered under OSHA's enabling legislation. Consequently, 25 states and territories, including New York, California, and Virginia (which were among the states we contacted), developed their own safety and health plans that cover state and local public sector employees. The applicability of the OSHA regulations to federal workers is covered under Executive Order No. 12196.

OSHA's regulations implemented national policy on emergency response training that employers must adhere to, among other things. Section 1910.120(q) of OSHA's regulations requires employers to provide emergency response training based on the duties and function to be performed by each responder in an emergency response organization. Employers are also required to establish an emergency response plan, develop procedures for handling an emergency response, and ensure that trainers are qualified and that employees receive annual refresher training.

OSHA's regulation (OSHA 1910.120(q)(6)) has several levels of response training, such as (1) First Responder Awareness, (2) First Responder Operations, (3) Hazardous Materials Technician, (4) Hazardous Materials Specialist, and (5) On scene Incident Commander. Awareness and Operations courses train responders to take a cautious defensive approach, such as notifying the proper authorities, keeping a release from spreading, and preventing exposures from a safe distance. Conversely, the technician and specialist level courses train responders to take offensive action

intended to stop a release. For example, a hazardous materials technician or specialist is trained to approach a point of a hazardous material release in order to plug, patch, or otherwise stop it. Training at the incident command level, while defensive in nature, provides instruction on controlling incident scenes by implementing employer and local emergency response plans.

Employees of state and local governments in states that do not have OSHA-approved health and safety plans are subject to EPA 40 C.F.R. 311. Section 126(f) of the Superfund Amendments Reauthorization Act of 1986 required EPA to promulgate standards identical to those contained in 29 C.F.R. 1910.120. As a result, state and local government emergency responders enjoy the health and safety protections provided to all workers and are subject to the training requirements detailed in the OSHA regulation. While this regulation cites specific training requirements, it provides limited detail on the wide array of hazardous material emergency response knowledge, known as competencies, needed by emergency response personnel. These competencies were detailed in the National Fire Protection Association's standard known as NFPA 472.

The National Fire Protection Association serves as the OSHA-recognized standard-setting organization for fire fighters in North America and in this role establishes the OSHA "national consensus standard." A wide array of experts from fire fighting and related professions across the country meet as expert committees to carry out this voluntary, industry-based, consensus-based effort. Development of NFPA 472—*Standard on Professional Competence of Responders to Hazardous Materials Incidents*—began in 1986; and the current standard was issued in 1997. This document sets out the knowledge and skills—known as "competencies"—that should be achieved through emergency response training. These competencies were established for the various levels of emergency response training contained in OSHA's 29 C.F.R. 1910.120 (q)(6), although the Hazardous Materials Specialist level has been deleted and replaced with various specialty levels of training. Changes in the standard result because NFPA technical committees review their standards for currency and update them at least every 5 years. NPFA 472 specifies minimum competencies for those who will respond to hazardous materials incidents and is not intended to restrict any jurisdiction from exceeding these minimum competencies.

HMEP Training Grants for Responding to Hazardous Materials Emergencies, Fiscal Years 1993 Through 1999

State	FY 1993[a]	FY 1994	FY1995	FY1996	FY 1997	FY 1998	FY 1999
Alabama	$93,287	61,700	$54,906	66,436	66,436	66,436	89,370
Alaska	29,960	19,817	17,582	21,274	21,274	21,274	28,618
Arizona	73,122	48,363	42,896	51,904	51,904	51,904	69,821
Arkansas	69,521	45,982	40,717	49,268	49,268	49,268	66,275
California	408,215	269,995	239,982	290,378	290,378	290,378	390,617
Colorado	79,608	52,653	46,886	56,732	56,732	56,732	76,316
Connecticut	64,839	42,885	38,249	46,281	46,281	46,281	62,257
Delaware	31,103	20,571	18,199	22,021	22,021	22,021	29,623
District of Columbia	26,517	17,539	15,731	19,035	19,035	19,035	25,606
Florida	192,521	127,334	113,205	136,978	136,978	136,978	184,263
Georgia	135,067	89,334	79,274	95,922	95,922	95,922	129,034
Hawaii	32,650	21,594	19,125	23,141	23,141	23,141	31,129
Idaho	50,825	33,616	29,921	36,204	36,204	36,204	48,702
Illinois	204,547	135,288	120,299	145,562	145,562	145,562	195,810
Indiana	101,853	73,755	65,394	79,127	79,127	79,127	106,442
Iowa	87,217	57,686	51,204	61,957	61,957	61,957	83,345
Kansas	90,696	59,987	53,364	64,570	64,570	64,570	86,860
Kentucky	82,383	54,488	48,428	58,598	58,598	58,598	78,826
Louisiana	89,641	59,288	52,746	63,823	63,823	63,823	85,855
Maine	0	26,624	23,751	28,739	28,739	28,739	38,660
Maryland	79,352	52,483	46,577	56,358	56,358	56,358	75,813
Massachusetts	100,507	66,476	58,916	71,288	71,288	71,288	95,897
Michigan	159,926	105,776	94,080	113,837	113,837	113,837	153,134
Minnesota	109,399	72,357	64,160	77,634	77,634	77,634	104,434
Mississippi	70,279	46,483	41,334	50,014	50,014	50,014	67,279
Missouri	123,294	81,547	72,488	87,710	87,710	87,710	117,987
Montana	51,964	34,370	30,538	36,951	36,951	36,951	49,706
Nebraska	66,160	43,758	38,866	47,028	47,028	47,028	63,262
Nevada	47,405	31,353	27,761	33,591	33,591	33,591	45,187
New Hampshire	36,578	24,193	21,592	26,126	26,126	26,126	35,145
New Jersey	155,113	102,593	90,996	110,105	110,105	110,105	148,113
New Mexico	0	35,170	31,154	37,696	37,696	37,696	50,709
New York	251,283	166,200	147,752	178,780	178,780	178,780	240,495
North Carolina	125,776	83,189	74,030	89,576	89,576	89,576	120,498
North Dakota	54,838	36,270	32,080	38,568	38,568	38,568	51,882

(Continued From Previous Page)

State	FY 1993[a]	FY 1994	FY1995	FY1996	FY 1997	FY 1998	FY 1999
Ohio	188,236	124,501	110,737	133,992	133,992	133,992	180,246
Oklahoma	89,356	59,101	52,438	63,450	63,450	63,450	85,353
Oregon	82,538	54,591	48,428	58,598	58,598	58,598	78,826
Pennsylvania	191,378	126,578	112,588	136,231	136,231	136,231	183,258
Rhode Island	34,774	23,000	20,358	24,633	24,633	24,633	33,136
South Carolina	80,546	53,274	47,194	57,105	57,105	57,105	76,818
South Dakota	51,573	34,111	30,228	36,576	36,576	36,576	49,202
Tennessee	103,225	68,273	60,767	73,528	73,528	73,528	98,910
Texas	315,575	208,722	185,384	224,315	224,315	224,315	301,749
Utah	53,506	35,388	31,463	38,070	38,070	38,070	51,212
Vermont	30,934	20,459	18,199	22,021	22,021	22,021	29,623
Virginia	103,938	68,745	61,075	73,901	73,901	73,901	99,412
Washington	97,481	64,475	57,374	69,423	69,423	69,423	93,388
West Virginia	0	33,695	29,921	36,204	36,204	36,204	48,702
Wisconsin	112,037	74,101	65,702	79,499	79,499	79,499	106,942
Wyoming	38,497	25,462	22,518	27,247	27,247	27,247	36,653
Territories	71,053	96,923	24,676	45,161	104,132	88,456	140,078
Native American tribes	88,012	104,161	87,717	73,866	99,516	97,697	97,601
Total	$5,108,105	$3,576,277	$3,110,950	$3,747,032	$3,831,653	$3,814,158	$5,118,079

[a] Fiscal year 1993 grants were higher because funding came from fees collected in fiscal years 1992 and 1993.

RSPA's HMEP Program Expenses for Hazardous Materials Emergency Response, Fiscal Years 1993 Through 1999

Dollars in millions

Types of expenses	FY93[a]	FY 94	FY 95	FY 96	FY97	FY 98	FY 99
Training and planning grants to states[b]	$8.39	$5.88	$5.19	$6.31	$6.37	$6.37	$8.51
Emergency Response Guidebook[c]	1.10	0	0	0.70	0	0	0.70
Curriculum development[d]	0.70	0.40	0.40	0.20	0.20	0.20	0.20
Technical assistance[e]	0.30	0.30	0.30	0.30	.23	0	0
NIEHS[f]	0.25	0	0	0	0	0	0
IAFF[g]	0	0	0.25	0	0	0.25	0.25
Administrative expenses[h]	0.50	0.40	0.40	0.40	0.26	0.27	0.26
Total HMEP Program Cost	11.24	6.98	6.54	7.91	7.06	7.09	9.92
Registration expenses[i]	2.80	0.98	1.00	0.74	0.76	0.76	0.72
Total expenses	14.04	7.96	7.54	8.65	7.82	7.85	10.64
Excess fees to the Treasury's general fund[j]	-0.20	0.38	0.43	0.68	0.77	0.89	0.86

[a] RSPA did not award grants in fiscal year 1992. The grants for fiscal year 1993 included funds from fees collected in fiscal years 1992 and 1993.

[b] Amounts include unused funds that have been de-obligated and includes grants to territories and tribes.

[c] Guidebook distributed to fire fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving a hazardous material.

[d] Curriculum development performed by FEMA's Emergency Management Institute in Emmitsburg, MD.

[e] Technical assistance includes assisting grantees in carrying out emergency response training and planning.

[f] National Institute of Environmental Health Sciences.

[g] The International Association of Fire Fighters trains local personnel to conduct hazardous materials emergency response training programs.

[h] RSPA's grant administration expenses.

[i] RSPA's administrative cost of collecting fees and registering hazardous materials shippers and carriers. Registration fees are separate from, and not considered part of, the HMEP grant program.

[j] The excess fees collected to administer the registration program were retained in the Treasury's general fund.

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